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Joh et al.

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(54) **LARGE-AREA CARBON NANOMESH FROM POLYMER AND METHOD OF PREPARING THE SAME**

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See application file for complete search history.

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(57) **ABSTRACT**

(51) **Int. Cl.**

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The present disclosure relates to a polymer-based large-area carbon nanomesh and a method for preparing same. More particularly, the present disclosure provides a method for preparing a carbon nanomesh, including: preparing a polymer nanofilm by coating a solution of a block copolymer or a polymer mixture thereof on a substrate; stabilizing the polymer nanofilm by annealing such that the polymer nanofilm is phase-separated, a pore-forming polymer is removed and, at the same time, a nanomesh-forming polymer forms a stabilized porous polymer nanomesh; and carbonizing the stabilized porous polymer nanomesh by annealing at high temperature to prepare a carbon nanomesh. Using phase separation and cyclization of a polymer, a large-area carbon nanomesh with superior activity can be prepared simply with high reproducibility in large scale.

(52) **U.S. Cl.**

CPC **C01B 31/0446** (2013.01); **B01J 23/40** (2013.01); **B01J 23/70** (2013.01); **B01J 35/0013** (2013.01);

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(58) **Field of Classification Search**

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20 Claims, 9 Drawing Sheets

